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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,275	10/20/2003	Ian Robinson	NG(ST)-6583	2918
26294 7590 08/05/2008 TAROLLI, SUNDHEIM, COVELL & TUMMINO L.L.P. 1300 EAST NINTH STREET, SUITE 1700 CLEVEVLAND, OH 44114				
EXAMINER VLAHOS, SOPHIA				
ART UNIT 2611		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/689,275

Applicant(s)

ROBINSON ET AL.

Examiner

SOPHIA VLAHOS

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 5, 6, 8-10, 13-19, 25 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 5, 6, 8-10, 19 and 25 is/are allowed.
- 6) ☒ Claim(s) 13-16, 18 and 26 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsman's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Response to Arguments

2. Applicant's arguments, see "Remarks", filed 6/06/08, with respect to the rejection of independent claim(s) 1 and 19 under 35 U.S.C. 103(a) have been fully considered and are persuasive. The rejection of claims 1, 5-6, 8-10, 19 has been withdrawn. Applicant's arguments, see "Remarks", filed 6/06/08, with respect to the rejection(s) of independent claim(s) 13 and 26 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Uta et al. (U.S. 6,144,694).

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "signal converter that converts the upconverted spread input signal from a first domain to a second domain to provide a converted spread input signal" of claim 1 must be shown or the feature(s) canceled from the claim(s). (Fig. 14 shows signal conversion taking place before frequency upconversion). No new matter should be entered.

Claim 17 (depends on claim 15 which in turn depends on claim 13) recites: "further comprising a second signal converter for converting the spread input signal from the second domain to the first". Fig. 14, Fig. 15 show systems including clipping components (as required by base claim 13) and signal converters converting from a first to a second domain (DACs) but they don't show second signal conversion of the spread input signal from the second domain to the first. Therefore the second signal converter for converting the spread input signal from the second domain to the first must be shown or the feature(s) canceled from the claim(s).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 13-15, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uta et al. (U.S. 6,144,694) in view of Curry et al.(U.S. 6,345,073).

With respect to claim 13, Uta et al. disclose: a spreading code generator that produces a spreading code (see Fig. 1, block 20 "spread code generator", generating a PN spreading code, column 4, lines 2-5); a spreading circuit that receives an input signal and combines the input signal with the spreading code to provide a spread input signal (Fig. 1, spreading circuit (mixer 19) combines an input signal produced by summer 18 with PN code, column 4, lines 2-5); a clipping component that reduces peaks associated with the spread input signal (Fig. 1, block 22, "Amplitude Limiter Circuit" column 4, lines 5-9);

Uta et al. do not expressly teach: a direct sequence spread spectrum (DS-SS) spreading code; a despreading circuit that despreads the peak reduced spread input

signal (although Uta et al. teaches using a conventional type receiver (that performs complementary processing compared to the transmitter) column 3, lines 1-3).

In the same field of endeavor (spread spectrum), Curry et al. disclose: a direct sequence spread spectrum (DS-SS) spreading code (Fig. 2, spreading code generator produces a DSSS spreading code, column 2, lines 4-20 description of DSSS spreading code, column 9, lines 5-9); a despreading circuit that despreads the peak reduced spread input signal (column 2, lines 24-27 description of despreading performed at the receiver and Fig. 2 see column 9, lines 51-55, where the received spread signal is despread).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Uta et al. based on the teachings of Curry et. al. so that the transmitted signals are protected again both jamming and unintentional interference (Curry et al. column 1, lines 19-29) and forming a DSSS communications system by including a receiver where the despreading operation takes place, (the transmitter of Uta et al. is meaningful when coupled to a receiver in the system obtained by the combination of Uta based on Curry, the receiver includes a despreading circuit that despreads the transmitted peak reduced spread input signal)

With respect to claim 14, Uta et al. further disclose: wherein at least one of the spreading circuit and despreading circuit comprises a mixer (see Uta et al. Fig. 1, mixer 19).

With respect to claim 15, Uta et al. further disclose: further comprising a signal converter that converts the spread input signal from a first domain to second domain, the signal converter being one of a digital-analog converter (DAC) and an analog-to-digital converter (ADC) (Fig. 1, block 25 D/A converter, converts the (peak reduced, interpolated, filtered) spread input signal to analog).

With respect to claim 26, Uta et al. disclose: means for generating a spreading code (Fig. 1, block 20, spread code generator, column 4, lines 2-4); means for combining the spreading code with an input signal to produce a spread input signal (Fig. 1, mixer 19, combines PN code and combined signal out of adder 18, column 4, lines 1-5); means for clipping the spread input signal to remove peaks (Fig. 1, block 22 "amplitude limiting circuit", column 4, lines 6-7); means for converting the spread input signal from a first domain to a second domain (not shown, corresponding receiving apparatus mentioned in column 3, lines 1-3, and the transmitted spread input signal is intended for the first domain is the wireless signal domain, and the second domain is the electrical signal domain) ;

Uta et al. do not expressly teach: a direct sequence spread spectrum (DS-SS) spreading code; means for despreading the spread input signal the second domain.

In the same field of endeavor (spread spectrum), Curry et al. disclose: a direct sequence spread spectrum (DS-SS) spreading code (Fig. 2, spreading code generator produces a DSSS spreading code, column 2, lines 4-20 description of DSSS spreading code, column 9, lines 5-9); means for despreading the spread input signal in the second

domain (column 2, lines 24-27 description of despreading performed at the receiver (and the receiver processes electrical signals) and Fig. 2 see column 9, lines 51-55, where the received spread signal is despread).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Uta et al. based on the teachings of Curry et al. so that the transmitted signals are protected again both jamming and unintentional interference (Curry et al. column 1, lines 19-29) and forming a DSSS communications system by including a receiver where the despreading operation takes place, (the transmitter of Uta et al. is meaningful when coupled to a receiver in the system obtained by the combination of Uta based on Curry, the receiver includes a despreading circuit that despreads the transmitted spread input signal)

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uta et al. (U.S. 6,144,694) in view of Curry et al. (U.S. 6,345,073) as applied to claim 15 and further in view of Schoner et al. (U.S. 6,420,987).

With respect to claim 16, neither Uta et al. nor Curry et al. expressly teach: the signal converter being one of a delta-sigma DAC and a delta-sigma ADC.

In the field of DAC conversion, Schoner et al. teaches a delta-sigma DAC (Fig. 1, column 1, lines 10-29).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Uta et al. based on the teachings of Schoner so that a sigma-delta type DAC is used (sigma-delta modulation shapes quantization noise

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away from signals of interest) and exhibits improved performance (Schoner et al., column 1, lines 10-28).

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uta et al. (U.S. 6,144,694) in view of Curry et al. (U.S. 6,345,073) as applied to claim 15 and further in view of Swazey (U.S. 6,738,604).

With respect to claim 18, Uta et al. further disclose: further comprising a circuit for frequency converting the spread input signal one of before signal conversion and after signal conversion (Uta et al. Fig. 1, function of block 26, after signal conversion (D/A) performs upconversion, column 1, lines 48-50).

Neither Uta et al. nor Curry et al. expressly teach a mixer.

In the same field of endeavor (CDMA communication systems) Swazey disclose: a mixer (used for frequency upconversion of a spread signal) (Fig. 1, mixer 110 used for upconversion column 2, lines 52-57).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Uta et al. based on the teachings of Swazey to use a mixer (for frequency upconversion) the rationale being a mixer is a component used in the art to perform frequency mixing.

Allowable Subject Matter

8. The following is a statement of reasons for the indication of allowable subject matter:

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The prior art of the record fails to teach or suggest alone or in combination: a spreader that combines the spreading code with an input signal to provide a spread input signal; a despreaders that despreads the upconverted spread input signal to provide a despread signal; and an antenna that transmits the despread signal, as recited in claim 1 and in combination with other elements of the claim.

Claims 1, 5-6, 8-10 are allowed.

The prior art of the record fails to teach or suggest alone or in combination: A method for transmitting a signal, comprising: spreading a digital signal with a spreading signal code; despreaders the upconverted analog signal to provide a despread signal; and transmitting the despread signal as recited in claim 19 and in combination with other steps of the claim.

Claims 19, 25 are allowed.

9. Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims (and the objection to the Drawing is overcome).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOPHIA VLAHOS whose telephone number is (571)272-5507. The examiner can normally be reached on MTWRF 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SOPHIA VLAHOS/
Examiner, Art Unit 2611
8/8/2008

/Mohammad H Ghayour/
Supervisory Patent Examiner, Art Unit 2611